

The Nominal Invalidity of the Cyprinid Genus, *Parasinilabeo*, with Descriptions of a New Genus and Species

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Rui-Feng Su, Jun-Xing Yang and Gui-Hua Cui (2001) The nominal invalidity of the cyprinid genus, *Parasinilabeo*, with descriptions of a new genus and species. *Zoological Studies* 40(2): 134-140. A new genus, *Pararectoris* Su, Yang and Cui, is designated based on the type species, *Pararectoris assimilis* (Wu and Yao, 1977). The new genus differs from 2 closely related genera, *Sinocrossocheilus* and *Rectoris*, by the following combination of characters: rostral cap joined directly with lower lip in mouth corners; the well-developed rostral cap covering both the upper lip and upper jaw, the prefringe of the rostral cap in the form of fimbriations with heavily hornified papillae; a row of tiny lobes on the dorsum of the upper jaw; prefringe of the lower lip with dense hornified papillae; and 7 branched dorsal fin rays. A new species, *P. microps*, is described on the basis of 6 specimens from the Taipingjiang River (a tributary of the Yuanjiang River, upper Yangtze River), Guizhou Province, China. This new species is distinguished by the following: only 1 pair of barbels (rostral barbels); the narrow papillated area of the lower lip extending to the posterior margin of the nostril; 41-45 lateral line scales; sixteen gill rakers on the outside of the 1st gill arch; and no black pigment on the area behind the hornified prefringe of the lower lip.

Key words: Invalidity of *Parasinilabeo*, *Pararectoris*, *Pararectoris microps*.

he genus Parasinilabeo Wu (1939) was described on the basis of the type species, P. mutabilis. Wu (1977) recognized that the type species, P. mutabili, should be transferred to a separated genus, Rectoris. Therefore Parasinilabeo Wu (1939) was set up without a solid type species and is a junior synonym of Rectoris Lin (1935). After P. assimilis Wu and Yao (1977) was reported, the genus Parasinilabeo was not re-described with designation of *P. assimilis* Wu and Yao as the type species. Based on these reasons, Bănărescu (1997) recognized Parasinilabeo as invalid name and treated it as a synonym of the genus Crossocheilus. Our close examination of many specimens of Crossocheilus fishes suggests that the formerly nominated P. assimilis should not be placed in the genus Crossocheilus. In fact, P. assimilis and the new species, Pararectoris microps, share some unique combinations of characters which distinguish them from other known genera in the subfamily Labeo-ninae. For

example, prefringes of both the rostral cap and lower lip are heavily covered with hornified papillae; the rostral cap is connected directly with the lower lip at the mouth corner, there are 7 branched dorsal fin rays; and the anus is much closer to the anal fin origin than to the ventral fin origin. These unique characters suggest that they represent a new genus in the subfamily Labeoninae. So it is necessary for us to described this as a new genus, *Pararectoris*.

The formerly nominated *Parasinilabeo assimilis* (Wu and Yao, 1977) is distributed widely in the Pearl River (Fang 1981, Cheng and Zheng 1987, Zheng 1989, Zhu 1995). In 1999, we collected more than 2000 fish specimens from Guizhou Province. During our identification of these specimens, we found that 6 specimens collected from Taipingjiang (upper Yangtze River) actually represent a new species, *Pararectoris microps*. The new species differs from the known species, *P. assimilis*, by having only 1 pair of barbels, small eyes, and 41-45 lateral line scales.

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Based on the problem mentioned above, the present paper focuses mainly on clarifying the generic and specific confusion surrounding the fishes of the formerly nominated genus, *Parasinilabeo*, and describing a new genus and species.

MATERIALS AND METHODS

All specimens examined belong to the collections of the Kunming Institute of Zoology (KIZ), Chinese Academy of Sciences. Counts and measurements follow Chu and Chen (1989). Abbreviations used in the measurements of the specimens listed in the text and tables are: TL (total length), SL (standard length), BD (body depth), HL (head length), SNL (snout length), ED (eye diameter), IW (interorbital width), CPL (caudal peduncle length), CPD (caudal peduncle depth), PL (predorsal length), LLS (lateral line scales), SL-D (scales from lateral line to dorsal fin origin), SL-V (scales between lateral line and ventral fin origin), PS (predorsal scales), LLSP-V (lateral line scales from pectoral fin tip to ventral fin origin), LLSV-a (lateral line scales between ventral fin tip and anus), DFR (dorsal fin rays), PFR (pectoral fin rays), VFR (ventral fin rays), AFR (anal fin rays), GR (gill rakers on the outside of the 1st gill arch), CS (circumpedicular scales), RB (rostral barbels), MB (maxillary barbels), PLFP (prefringe of lower lip covered with papillae), %SL (characters measured as percent of standard length), %HL (characters measured as percent of head length), %CPL (characters measured as percent of caudal peduncle length), %ED (characters measured as percent of eye diameter), and %IW (characters measured as percent of interorbital width).

RESULTS

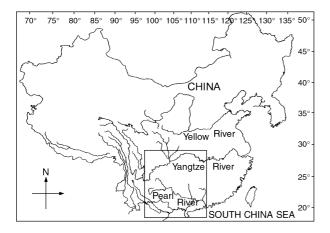
Pararectoris Su, Yang and Cui, gen. nov.

Type species: Pararectoris assimilis (Wu and Yao, 1977). Parasinilabeo assimilis Wu and Yao, 1977: 366-368.

Diagnosis: The new genus is distinguished from other genera in subfamily Labeoninae by the combination of the following characters: mouth inferior; rostral cap on upper jaw completely closed with fimbriated prefringe covered by many hornified papillae; upper lip in the form of a row of tiny lobes; lower and upper jaws hornified with sharp edges; prefringe of lower lip separated from lower jaw by a shallow groove and heavily covered with hornified papillae; rostral cap connected directly with lower lip at mouth corner; one or 2 pairs of barbels, maxillary barbels poorly developed or absent, rostral barbels situated at lateral groove of snout; branched dorsal fin rays 7; anus much closer to anal fin origin than to ventral fin origin; pharyngeal teeth 3 rows, pharyngeal tooth formula 5.4.2-2.4.5; scales on abdomen smaller than those on sides of body and rudimentary on the area between the base and tip of pectoral fin; prefringes of both rostral cap and lower lip heavily covered with hornified papillae.

Distribution: Pararectoris fishes occur only on southern slopes of the Nanling Mountains and eastern slopes of the Yunnan-Guizhou Plateau, China. They usually inhabit the middle or lower layers of swift currents in intermontane streams of the upper Yangtze and Pearl Rivers (Fig. 1).

Etmology: Para means similar in Latin and Rectoris is the name of the genus Rectoris. Pararectoris alludes to the fact that the new genus has a close relationship with Rectoris.



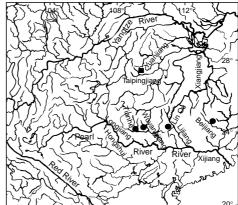


Fig. 1. Map showing the distributions of *Pararectoris microps* sp. nov. (solid square) and *P. assimilis* (Wu and Yao) (solid circle) in southern China

Remarks: Although the genus Parasinilabeo is invalid because of the inappropriate designation of the type species, Parasinilabeo assimilis Wu and Yao (1977) (= Pararectoris assimilis) and Pararectoris microps share some unique characters clearly distinguish them from related genera such as Rectoris, Sincrossocheilus, and other genera in the Subfamily Labeoninae. So it is essential to set up a new genus, Pararectoris, which contains the 2 species.

Pararectoris microps Su, Yang and Cui, sp. nov. (Fig. 2)

Holotype: KIZ 9905302, 67.5 mm SL, Taipingjiang (a tributary of the upper Yangtze R.), Longjiazhai village of Jiangkou C., Guizhou, China 108°40'E, 27°43'N; R.F. Su and G.H. Cui 14 May 1999.

Paratypes: Five specimens, cataloged as KIZ9905301, 9905302 (a), 9905302(b), 9905630, 9905656, 63.0-79.5 mm SL, same data as holotype.

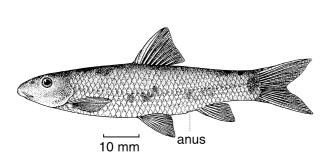


Fig. 2. Lateral view of *Pararectoris microps* sp. nov., holotype (KIZ9905302), Taipingjiang, Jiangkou, Guizhou.

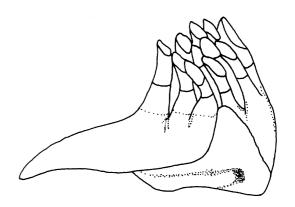


Fig. 3. Ventral view of pharyngeal teeth of *Pararectoris microps* sp. nov., with a tooth formula of 5.4.2-2.4.5.

Table 1. Morphometric and meristic characters of *Pararectoris microps* sp. nov. (in mm)

	Holotypes	Paratypes					
	9905302	9905630	9905301	9905302(a)	9905302(b)	9905656	
	Male		Female				
LLS	41	45	44	41	41	42	
SL-D	5	5	5	5	5	5	
SL-V	3	3	4	4	4	4	
PS	14	14	15	16	16	13	
TL	82.5	99.5	89	86	79	95.5	
SL	67.5	79.5	71	68	63	75	
HL	17	15	15	15	15	17	
SNL	7	7.5	6	6.5	6	7	
ED	2.5	3.5	3	3	4	3	
CPL	11	14.5	10.5	11	9.5	13	
CPD	9	9.5	9	9	8	9.5	
%SL							
HL	22.2	21.4	21.1	22.1	23.8	22.7	
CPL	16.3	18.2	14.8	16.3	15.1	17.3	
CPD	13.3	11.9	12.7	13.3	12.7	12.7	
PDL	45.9	46.5	45.0	46.9	46.1		
%HL							
SNL	46.7	43.5	40.0	43.5	40.0	41.2	
ED	16.7	20.6	20.0	20.0	26.7	17.6	
IW	50.0	52.6	50.0	52.6	47.6	52.9	
%IW							
ED	33.3	43.8	40.0	37.5	50.0	33.3	
%ED							
RB	140	91.4	98	93.3	91.3	113	

Abbreviations are described in the "Materials and Methods" section.

Diagnosis: Eye relatively small, measuring 16.7%-26.7% (mean 20.3%) of HL; prefringe of rostral cap splitting into tiny fimbriations and with dense hornified papillae; prefringe of lower lip densely covered with hornified papillae and reaching area between 1/3 and 1/2 of eye; no black pigment on ventral of head or on hornified prefringe of lower lip; rostral barbels present, with length equal to or longer than eye diameter; maxillary barbels absent; gill rakers on the outside of the 1st gill arch 16, short and tiny; lateral line scales 41-45 (8 from tip of pectoral fin to ventral fin origin and 1-2 from tip of ventral fin to anus).

Description: Dorsal fin iii, 7. Pectoral fin i, 10-12. Ventral fin i, 8. Anal fin ii, 5. Branched caudal fin rays 16-17. Lateral line scales 41- 45 (5 from lateral line to dorsal fin origin and 3-4 from lateral line to ventral fin origin). Circumpedencular scales 16. Predorsal scales 14-16. Gill rakers on the outside of the 1st gill arch 16. Pharyngeal teeth in 3 rows, arranged in 5.4.2-2.4.5 (Fig. 3). For other morphometric and meristic characters see in table 1.

Eye relatively small, about 20% of HL, situated at posterior 1/2 of head. Mouth inferior, extending to posterior margin of nostril. 3 rows of horny tubercles on snout, reaching anterior margin of nostril; one row on the ventral of head and the other 2 on top and sides of snout; rostral cap well developed downwards with the entire upper jaw and upper lip com-

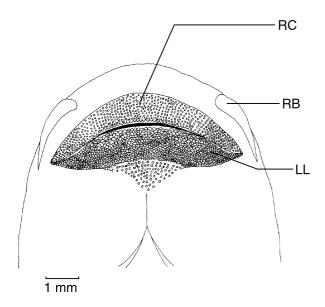


Fig. 4. Ventral view of head of *Pararectoris microps* sp. nov., holotype, showing the hornified papillae of the prefringe on the rostral cap and lower lip, the direct connection between rostral cap (RC) and lower lip (LP), and 1 pair of barbels, the rostral barbels (RB).

pletely enclosed; and connected directly to lower lip (Fig. 4); prefringe with tiny fimbriations due to dense hornified papillae; upper lip concealed between upper jaw and rostral cap; lower lip not in a sucking disc, and prefringe covered with dense horny papillae being confined to the anterior 1/3 to 1/2 of eye; mental groove absent; upper and lower jaws covered with a sharp horny edge; nostrils closer to anterior margin of eyes than to tip of snout.

Only rostral barbels present, developed and reaching posterior margin of nostrils, maxillary barbels absent.

Dorsal fin inserted in advance of ventral fin, the last simple dorsal fin ray unossified and smooth posteriorly. Distance between tip of pectoral fin and ventral fin origin wider, equivalent to 8-9 lateral line scales. Ventral fin not reaching anus, leaving a gap between ventral fin tip and anal fin origin of 2-3 lateral line scales in distance.

Lateral line complete and horizontal, with 41-45 scales; predorsal scales arranged irregularly; scales on ventral very small, especially on chest and abdomen; air bladder with 2 chambers, anterior one cylindrical, posterior one slender, 1.5-2.0 times as long as anterior one (Fig. 5).

Color pattern: Color when fresh, dorsal surface of head and body grayish with black pigments, ventral and sides white or slightly yellowish. In alcohol, dorsal surface of head and body grayish with black pigments while ventral and sides yellowish; black pigment absent from ventral side of head and hornified prefringe of lower lip; pectoral fin, dorsal fin, and caudal fin gray with black pigments, other fins uniformly whitish or yellow. Prefringe of rostral cap and lower lip yellowish.

Distribution: The new species is known only from Taipingjiang (a tributary of the upper Yangtze R.), Jiangkou Co., Guizhou Prov. (Fig. 6), China.

Habitat and ecology: The locality where the specimens were collected is situated at the village of Longjiazai, about 3.5-4 km from Jiangkou Co. This species prefers to inhabit underground rivers be-

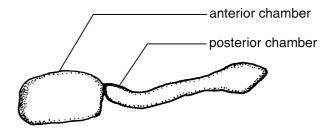


Fig. 5. Air bladder of *Pararectoris microps* sp. nov., showing 2 chambers.

tween Nov. and Mar. when fish feed mainly on filamentous algae. In the period between Mar. and Sept., they move to the middle or lower layers of fast flowing currents or intermontane streams for breeding.

Etymology: The new species name, *microps*, is derived from the Latin *micro* for small and *ops* for eyes, alluding to its relatively small eyes.

Pararectoris assimilis (Wu and Yao, 1977)

Parasinilabeo assimilis Wu and Yao, 1977: 367-368 (type locality: Yangshuo, Guangxi Prov.).

Materials examined: KIZ87055948, 1 specimen, 73.0 mm SL, Tian R. (upper Pearl R.), 108°41′E, 24°39′N, Guangxi, May 1987; KIZ87055609, 87056094-6094(a)-6094(b), 4 specimens, 68.0-81. 0mm SL, Wuyangjiang (a tributary of the upper Pearl R.), 109°4′E, 24°47′N, Guangxi, May 1987; KIZ9703195, 9703198, 9703201-202, 4 specimens, 57.0-73.5 mm SL, Lijiang, 110°30′E, 24°40′N, in Lipu of Guangxi, Mar. 1997; KIZ 660918-19, 2 specimens, 72.0-74.0 mm SL, Lianjiang (a tributary of the Beijiang), 112°38′E, 24°45′N, in Lian Co. Guangdong, China, Sept. 1966.

Diagnosis: Dorsal fin rays iii, 7. Pectoral fin rays i, 13-14. Ventral fin rays i, 8. Anal fin rays iii, 5. Lateral line scales 35-40; 4-5 scales from lateral line to dorsal fin origin, four scales from lateral line to ventral fin origin; circumpeduncular scales 16; predorsal scales 9-14. Gill rakers on outside of 1st gill arch 12-14. Pharyngeal teeth 3 rows, in 5.4.2-2.4.5. Vertebrae 4+35. Distance from pectoral fin tip to ventral fin origin about 4-7 lateral line scales. Tip of ventral fin reaching the anus, or leaving a gap of 3-4 lateral line scales in distance between them. Papillated



Fig. 6. Habitat where Pararectoris microps sp. nov. was collected

area of lower lip extending to halfway between nostril and anterior margin of eye. Black pigments on ventral surface of head and hornified prefringe of lower lip. Two pairs of barbel: rostral barbels relatively long and strong, measuring 73.8%-77.5% (mean 75.7%) of eye diameter; maxillary barbels tiny, measuring 29%-55% (mean 42%) of eye diameter. Prefringe of rostral cap with fimbriations due to dense hornified papillae. Tip of dorsal fin with a black triangular spot. Comparison of *Pararectoris microps* and *P. assimilis* can be seen in table 2.

Distribution: This species occurs mainly in the Pearl R. The specimens of *P. assimilis* reported by Wu and Yao (1977) from the upper reach of the Xiangjiang (a tributary of the Yangtze R.) are considered here to disperse from the upper Lijiang through the man-made channel, Lingqu, which connects the

Table 2. Comparison of *Pararectoris microps* and *P. assimilis* (in mm)

	Pararectoris	microps	P. assimilis	
	Range	Mean	Range	Mean
LLS	41-45		35-40	
SL-D	5		4-5	
SL-V	3-4		4	
LLSP-V	8		4-7	
LLSV-a	1-2		3-5	
PS	14-16		9-14	
DFR	3, 7		3, 7	
PFR	1, 10-12		1, 13-14	
VFR	1, 8		1, 8	
AFR	2, 5		3, 5	
GR	16		12-14	
CS	16		16	
MB	absent		a pair	
SL	63-79.5	70.4	68-81	71.7
HL	15-17	15.4	14-19.5	15.5
CPL	9.5-14.5	11.3	8.5-13.5	11.0
CPD	8.0-9.5	8.9	7.0-10.5	9.4
SNL	6.0-7.5	6.6	5.5-8.0	7.0
ED	2.5-4.0	3.2	3.0-4.5	4.0
IW	7.5-8.0	7.8	8.0-10.5	9.4
%SL				
HL	21.1-23.8	22.1	22.5-26.2	24.0
CPL	14.8-18.2	16.1	13.1-18.4	15.2
CPD	11.9-13.3	12.8	12.3-14.3	13.1
PL	45.0-46.9	46.0	44.4-52.9	47.6
%HL				
SNL	40.0-46.7	42.6	37.5-48.5	42.4
ED	16.7-26.7	20.4	22.2-30.0	23.8
IW	47.6-52.6	50.0	54.6-62.5	57.1
%CPL				
CPD	65.5-85.7	79.8	71.4-100.0	83.3
%ED				
RB	91.3-140	104.5	73.8-77.5	75.7

Abbreviations are described in the "Materials and Methods" section.

upper Lijiang with the upper Xiangjiang.

DISCUSSION

Wu (1939) identified his specimens from Lijiang (a tributary of the Pearl R.) of Guangxi as Parasinilabeo mutabilis (Lin, 1939) under the newly established genus, Parasinilabeo Wu (1939), on the basis of the type species, P. mutabilis (Lin, 1933). This species was originally described as Epalzeorhynchos mutabilis Lin (1933). Later in 1977, Wu placed the above type species, P. mutabilis, under the genus Rectoris Lin (1935). Thus Parasinilabeo Wu, 1939 is now considered a synonym of Rectoris Lin (1935) because of the inappropriate designation of the type species. At the same time, Wu et al. (1977) nominated the specimens from Lijiang as a new species, P. assimilis Wu and Yao (1977). Although Wu et al. (1977) tried to designate P. assimilis Wu and Yao as the new type species for the genus Parasinilabeo, it was not re-described as a new genus. Therefore Parasinilabeo is still invalid with the contradictory fact that although the genus Parasinilabeo was set up earlier in 1939, the type species was not designated until 1977.

Bănărescu (1997) recognized the mismatch between the generic nomination of *Parasinilabeo* (Wu 1939) and its type species, and treated *Parasinilabeo* as a synonym of *Crosssocheilus*. Because he did not have appropriate specimens for examination, Bănărescu(1997) failed to recognize the important

distinctions between P. assimilis and Crossocheilus fishes as well as with other genera in the subfamily of Labeoninae. Further examination here suggests that P. assimilis and P. microps share some unique characters, e.g., hornified papillae on the rostral cap and lower lip, three rows of hornified tubercles on the snout, and the direct joining of the rostral cap and lower lip which distinguish these from other known genera of the subfamily Labeoninae. This enables the above 2 species to be included in the new genus, Pararectoris. As far as the phylogenetic status of Pararectoris is concerned, Bănărescu (1986) included Parasinilabeo (= Pararectoris), Rectoris, and Sinocrossocheilus in the Crossocheilus-group of fishes on the eastern slopes of the Yunnan-Guizhou Plateau based primarily on the presence of fimbriations on the rostral cap and the absence of suckers on the lower lip. Wu (1977) further suggested that fishes of the genus Rectoris would be most closely related to these of the genus, Parasinilabeo. Our data support both of these ideas since Pararectoris, Sinocrossocheilus, and Rectoris share some unique characters: rostral cap jointed with the lower lip at the mouth corner, scales decreasing in size ventrally, with a naked area between the pectoral fin tip or ventral fin base and pectoral fin base; rostral cap with fimbriated prefringe; lower lip without a sucker, horny tubercles on the snout and lacrimal; predorsal vertebrae 12-13; postanal vertebrae 10-12; and the anterior margin of the hyomandibula sharply concave and not expanded into a lamina (Table 3).

Two examined specimens of Pararectoris from

Table 3. Comparisons of some character states among the genera, *Pararectoris*, *Rectoris*, and *Sinocrossocheilus*

Character	Pararectoris	Rectoris	Sinocrossocheilu
Rostral cap	well developed	well developed	well developed
Prefringe of rostral cap	fimbriated	fimbriated	fimbriated
Sucker on lower lip	not formed into sucking disc	not formed into sucking disc	not formed into sucking disc
Connection between rostral cap and lower lip	connected	connected	connected
Lateral sides of center of lower lip	not dissociated from lower lip	not dissociated from lower lip	not dissociated from lower lip
Anterior edge of hyomandibula	sharply concave	sharply concave	sharply concave
Rostral cap connection with lower lip	direct	indirect	indirect
Maxillary barbels located	lower lip	rostral cap	rostral cap
Papilla on lower lip	hornified	fleshy	fleshy
Papilla on rostral cap	hornified	fleshy	fleshy
Branched dorsal fin rays	7	7 and 8	8
Tiny lobe on upper jaw	with	without	with
Lower lip	horizontal	horizontal	the center risen as horse-hooked
Rows of pharygeal teeth	3	3	2 or 3
Distribution pattern	upper Yangtze and	upper Yangtze and	upper Yangtze and
·	Pearl Rivers	Pearl Rivers	Pearl Rivers

the upper reaches of the Xiangjiang (a tributary of the Yangtze R.) had 2 pairs of barbels (maxillary barbels short) and 38-39 lateral line scales. These agree completely with those from the Pearl R. suggesting that the above 2 specimens should be ascribed to P. assimilis (Wu and Yao, 1977). An important phenomenon is that 2 allopatric populations of P. assimilis from separate river systems in the upper Yangtze and Pearl Rs. show no obvious morphological differentiation. This may be caused by dispersal of individuals through the man-made channel, Linggu, connecting the Lijiang and Xiangjiang, respectively belonging to the upper stream systems of the Yangtze and Pearl Rs. Nevertheless, the population structure of this species will not be fully confirmed until further molecular techniques are applied.

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鯉科異華鯪屬(Parasinilabeo)命名的無效性及一新屬和一新種的描述

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本文對建立於 1939年的異華鯪屬(Parasinilabeo)鯪魚進行了系統分類整理,認為異華鯪屬不成立。同時描述了一新屬和一新種以及副直口鯪數(Pararectoris assimilis)的重新描述。新屬副直口鯪(Pararectoris)的模式種為副直口鯪(Pararectoris assimilis Wu and Yao, 1977)。該屬與華纓魚屬和直口鯪屬的親緣關係非常相近,其共同特徵為:吻皮發達,前緣分裂為小流蘇,吻皮和下唇在口角處相連,下唇沒有形成口吸盤,腹部鱗片變小,舌頜骨前緣不向外延展而形成一深弧形凹陷,吻端和兩側分布有珠星,背鰭前脊椎骨數 12-13,臀鰭後尾椎骨數 10-12。該屬區別於相近屬的特徵為:背鰭分支鰭條為 7;吻皮前緣佈滿角質突起:上唇形成一列小葉貼在上頜背面;下唇前緣被許多角質乳突覆蓋,吻端的珠星排列整齊。該屬魚類僅分布於長江和珠江流域,為中國特有屬。小眼副直口鯪的特徵為:僅有一對鬚,為吻鬚,無口角鬚,側線鱗 41-45,第一鰓弓外側鰓耙數為 16,下唇上被角質突及唇的後部區域無黑色素。該種分布於長江流域。

關鍵詞:異華鯪屬,副直口鯪屬,小眼副直口鯪。